



NYU WIRELESS

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Federal Communications Commission
445 F St. NW
Washington, DC 20022

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Dear FCC Officials:

I write regarding RM-11828, RM-11708 and NPRM 16-239. These actions should be summarily dismissed and not acted upon for at least the reasons given here. I also recommend that you or Congress investigate past actions and possible biases by some at the Commission in these matters.

1. The Public Policy behind the Amateur Radio Service and Part 97 Rules

The public policy that created the amateur radio service (“ham radio”) is focused on providing radio spectrum that would promote an interest in electronics and communications, establish international goodwill, and provide a hobby experience where pecuniary interests and bypass of commercial services are strictly forbidden. The tenets of the amateur radio service require that operators gain privileges through operating experience, and through the successful completion of examinations that demonstrate knowledge and skill. The intent of the service is to build a reservoir of technical experts for the country. The FCC is clear that no communications may be conducted for business use, and that ham radio may not be used to bypass other commercial means of communication. Furthermore, the FCC has always been clear that all communications must be open for eavesdropping by others over the air, so that other ham operators and the general public may listen in, learn, participate, and self-police the communications that occur in the amateur radio spectrum when necessary. Decreasing budgets for enforcement at the Commission make the self-policing aspect of amateur radio even more important now, in a post 9-11 world, than in the past.

As documented herein, I submit that RM-11828 by the American Radio Relay League (ARRL) is a thinly disguised attempt to immediately add up to 385,000 new HF digital stations that could build upon the existing network of Winlink/Pactor relay stations that provide effectively encrypted transmissions that cannot be monitored for content by other amateur operators or the FCC, and which would be used to perpetuate illegal and secure, international email service while crowding the US HF amateur bands with unintelligible wideband data traffic and intense interference. This proposal would instantly grant HF data privileges to these 385,000 relatively untrained individuals who have not demonstrated the needed knowledge and skill to operate on the HF bands, and who have little to no knowledge of propagation or operating principles at HF, while attempting to bolster the number of paid up ARRL members who might enter the hobby for these free email data services and secure communications. The proposal would also enrich the coffers of the Amateur Radio Safety Foundation, Inc (ARSFI), Winlink,

and the closed, private messaging services of Airmail/Sailmail, which require a network of relay stations and which are used primarily, and often illegally, by the boating community who pay a software license "donation" or annual subscription fee to "non profit entities" for private, effectively encrypted email software and services that improperly exploit the amateur radio spectrum.

A study of Part 97 rule modifications over the past two decades will show an insidious creep towards making emergency communications (EMCOMM) and data transmissions more prominent in the rules and stated public policy of amateur radio. While EMCOMM has always been a key part of the amateur radio service, and while data advances are needed and valuable in amateur radio, the fundamental principle of the amateur radio service has been to ensure there is a way for the public to engage and participate, and to provide a non-business environment and open access to the hobby. There are some, however, who view EMCOMM as the primary reason for the amateur radio service, and they use EMCOMM to justify an improper, private, encrypted email service that enriches and serves a tiny fringe of the hobby. Other rule changes over the past two decades have attempted to erode the "forbidden pecuniary interest" clauses, and there has been a lack of enforcement of the "no obscured message" clauses of Part 97, all which have enabled government agencies and private entities (even under the guise of "non profits") to exploit amateur operators and the Part 97 HF spectrum.

As shown here, these efforts to alter the public policy mission of the amateur radio service is predatory, as it has been done with the goal of justifying data communications that are not only improper under Part 97, but which enrich a tiny group of amateur radio enthusiasts (ARSFI/Winlink) who are using the free amateur radio spectrum to provide essentially a commercial-like personal email service, complete with privacy and effective encryption, through a tiny, closed software development community, and with lack of transparency or open source products, and with a donor "customer base" of global government agencies, marinas, and yachtsmen. The ARRL has aided and abetted the ARSFI/Winlink efforts to use the amateur radio spectrum in this manner, as the ARRL has tried to advance its membership ranks by improperly proclaiming this illegal obscured traffic as being valid and vital for EMCOMM.

(see: <https://www.cruisingworld.com/staying-connected-at-sea>, and <https://ema.arrl.org/ares/winlink-2000/> ("a side effect of this compression is that Winlink transmissions are nearly impossible to intercept" in the 2nd paragraph), and <http://www.arrl-mdc.net/Winlink/MDCWL2KOVwAM.htm> ("WL2K system radio-email is also compressed to reduce spectrum use and to enhance privacy" in 3rd paragraph.)

These tactics run afoul to the public policy of the amateur radio service, and the FCC and ARRL have looked the other way for decades when thousands of amateur operators have urged ARRL and FCC to stop its aggressive moves to allow wideband obscured traffic in the amateur radio bands (first in the original "ARRL HF Digital ad-hoc Committee" where Winlink founders were given oversized leadership roles by ARRL directors and then abused their powers, and in RM-11306, and more recently in RM-11708, NPRM 16-239, RM-11759, and RM-11828).

The misguided approach taken by ARRL and ARSFI/Winlink of encouraging private email service and EMCOMM traffic that cannot be listened to by other amateur operators over the air, through the use of proprietary software, hardware, and compression schemes, and their open endorsement of digital

communication modes that lack any open source software or freeware for others to improve and adopt for experimentation by a development team that lacks openness and transparency regarding its “product features” and “customers”, is hampering the spirit and appeal of the amateur radio hobby to new entrants, especially youngsters who are vitally needed to improve the engineering and scientific capabilities of the US, and who are key to the economic future of our country.

As an electrical engineering professor and researcher, I know all too well how the population of US citizens who study undergraduate engineering in college is dwindling when compared to the international student pool, and I urge the FCC to stop the efforts by ARRL and ARSFI/Winlink that attempt to “dumb down” the hobby into a personal, pseudo-commercial encrypted personal email service, instead of expanding the hobby with open source software, over-the-air listening, learning, and engagement with the technical aspects of electronics – the way the hobby was originally intended to be cultivated.

The Commission and Congress must clarify and assert that the basic public policy behind the amateur radio service is to provide a forum for experimentation and learning, where participants can modify and improve software and hardware, and for listening and learning best practices while engaging with others, such that the public may tune in to listen to gain knowledge of the craft of electronics, experimentation, as well as friendship. Having open communications, that allow others to hear the stations on the air, and having software that is open source and available to all for use and modification, enhances knowledge and experience, and creates a forum that stimulates technical and hobby interests. Indeed, many people in engineering, entertainment, radio, and teaching gained their interests from tinkering with hardware and software, and listening and learning from the public airways of amateur radio, and many short wave listeners (SWLs) gained entrance into the hobby by listening to the public airways before ever obtaining a license. That is how I became interested in amateur radio which led me to a career in electronics, and is how others will come to embrace this great hobby. The Winlink/ARSFI traffic, its closed development team and closed software, and its obfuscation of the facts about its network and its obscured/encrypted emails, which are also embraced by ARRL as a valid form of EMCOMM, fly in the face of this public policy to govern and provide the public airwaves for the hobby of amateur radio. In addition, the way that ARSFI/Winlink and ARRL deal with criticisms and concerns for its actions also degrades the goodwill within the hobby, and goes against the stated public policy to foster goodwill and personal advancement in the amateur radio service.

I submit that this wideband digital data agenda is in direct violation of Part 97 rules, which state that:

- (1) the public should be able to engage in radio technique, solely with a personal aim, and with no pecuniary interest, to learn the radio art and to experiment, and this includes the ability to listen to all radio traffic, to learn and participate in the art and skill of amateur radio, to learn about the radio art by shortwave radio listening, and other activities which ensure that all messages on the amateur radio bands be unobscured, and not with hidden meaning. The FCC Part 97 rules are also very clear that there should not be any pecuniary interest, nor may there be any bypassing of other commercial means through the amateur radio service. This fundamental public policy requires all transmissions to be open to all, and that amateur radio not be used to allow for personal/private email transmissions that could be carried by a commercial email service provider, and that

commercial activities must not be carried out over the amateur airwaves. The FCC has explicitly ruled time and time again, that EMCOMM is NOT exempt from this public policy, as espoused in many places in Part 97, and in 95-2106 (open source Factor 1), and 13-1918 (no encryption ever allowed). (see: Part 97.3 (4), 97.113(a)(4) , 97.113(a)(5), and

<https://www.fcc.gov/wireless/bureau-divisions/mobility-division/amateur-radio-service>,
https://transition.fcc.gov/Daily_Releases/Daily_Business/2013/db0918/DA-13-1918A1.pdf,
<https://hamradioschool.com/ham-radio-peculiar-pecuniary-interest/>,
<https://docs.fcc.gov/public/attachments/DA-95-2106A1.pdf>
and <https://www.law.cornell.edu/cfr/text/47/97.113>

- (2) the amateur radio service is meant to enable and encourage advancement in the radio art and to foster international goodwill. This requires incentive licensing, and activities that foster goodwill, such as open communication and a purely altruistic attitude. I urge FCC to see that ARRL and ARSFI/Winlink, through RM-11828 and RM-11306, RM-11708, and NPRM 16-239, are not fostering goodwill, as they are not honoring the public policies that require that each license be granted a license class that is commensurate with the degree of skill and knowledge they have in operating a station through an examination, and they are not encouraging goodwill by continuing to ignore the public outcries and concerns of effectively encrypted transmissions. Stated simply, the ARRL, in asking for instant technician and HF data privileges for 385,000 entry-level licensees who have not demonstrated HF operating proficiency in RM-11828, is flying directly in the face of the stated purpose of amateur radio which requires incentive licensing and privileges that only match the level of knowledge and skill demonstrated by the amateur operator. (see: Part 97.1, and <https://www.fcc.gov/wireless/bureau-divisions/mobility-division/amateur-radio-service>)

In every case on record, when pressed, the FCC has prohibited obscured or encrypted messaging on the amateur radio spectrum, even for Health Insurance Portability and Accountability Act (HIPAA) or EMCOMM activities, due to the Commission's recognition of the above stated tenets of the hobby, and the need for amateur operators to be able to self-police the amateur radio spectrum and its usage. (see: FCC 13-1918). Yet, ARSFI and Winlink proponents continue to urge for encryption in the amateur radio service, such as espoused by Steve Waterman in comments to the Commission in PSHSB-17344, where he postulates a future where a vast portion of the HF spectrum would be used for EMCOMM with encrypted messages (but he fails to acknowledge the vast interference that would occur from wideband data emissions). Mr. Waterman's comments in PSHSB-17344 also neglect to mention Winlink's close association with commercial email services such as Airmail and Sailmail that use the same software and networks to offer secure private email service to yacht owners on the backs of the amateur radio spectrum, see: <https://winlink.org/tags/sailmail>, <https://sailmail.com/using-airmail-with-both-sailmail-and-winlink/>)

Of great concern, FCC Wireless Telecommunications Bureau (WTB) and Public Safety Homeland Security Bureau (PSHSB) officials have for years ignored the public outcry by thousands of rank and file

amateur radio operators about this blatant use of the free amateur spectrum to bypass other commercial email service providers, and the inability to detect Winlink traffic by over-the-air observers. Even FCC's own enforcement bureau cannot police these airwaves that cross international borders, and in light of FCC's 13-1918 acknowledgement of the need for the amateur radio service to avoid encryption in all cases, and to be able to self-police its spectrum usage and transmissions, this deserves immediate attention and rectification.

2. RM-11828 and NPRM 16-239 should be rescinded immediately without action

This ARRL proposal, RM-11828, if enacted, would immediately give 385,000 new US amateurs the right to use and send HF data transmissions. Unfortunately, with the lack of current enforcement by the FCC, and with the inability of the FCC or other amateur radio operators to listen in to over-the-air transmissions of the closed ARSFI/Winlink data traffic, the "creative interpretation" and continued aggression by this small splinter group of amateurs would instantly make these 385,000 new hams eligible candidates to send encrypted messages, files, and emails via the ionosphere and across our border. Crime, such as drug and human trafficking, business use, banking, bitcoin, the bootlegging of call signs on the high seas...all of these illegal activities could be conducted in the amateur radio spectrum without other hams or the FCC being able to detect or act on the transmissions. This is already happening now, and has been reported in the media. I gave several examples to the FCC in Fall 2016, and these violations cannot be detected or stopped or reported when hams cannot intercept the traffic on the airwaves. RM-11828 and NPRM 16-239/RM-11708 would perpetuate these problems in a grand scale, and are a threat to our country's security and the hobby. It simply is not wise to instantly grant HF data privileges to 385,000 amateur operators, over night, when the widely known issue of obscured messaging is not first dealt with.

By not first curing the inability of other hams operators and the public to listen in to all traffic over the air, dangerous violations will continue to occur, and the same failed approach to grow the hobby that RM-11828 discloses will be further rewarded, with a disastrous end result of a massive influx of HF data "customers" of Winlink/ARSFI and ARRL EMCOMM activities that do not fulfill the public policy mandate of the amateur radio service. In short, there would be a huge proliferation of more interference, more likelihood of abuse, less experimentation or adoption of technical knowledge through open source tinkering, and much less ability to monitor the amateur spectrum, leading to a mosh-pit of effectively encrypted modes of digital communication that are not open source or available to others for decoding or experimentation.

(see: for example:

<https://bitcoinist.com/bitcoin-sent-ham-radio/> ,

<https://www.yachtingmonthly.com/boat-events/golden-globe-race/golden-globe-race-slats-considers-quitting-comms-row-68574>

<http://www.nydailynews.com/news/world/mexico-drug-cartel-zetas-radio-system-article-1.997041>

In RM-11828, the FCC, the public, and Congress should recognize that instead of taking responsibility for ARRL's own lack of attention to fostering growth and interest in the hobby, through engagement of secondary or primary educators, or through higher education, 4-H, scouting programs, or the maker movement, the ARRL has failed to be a good steward of the amateur radio community and the amateur radio spectrum, and is simply asking for a handout for its least technical members who have, by ARRL's own admission, a proven track record of not operating and not embracing the hobby. The ARRL ignores the FCC's stated requirement in Part 97 rules that licensing be based on skill and knowledge, and takes no responsibility for its own failures to cultivate the hobby of amateur radio, and instead asks for "free license privileges" that include data privileges in the HF bands.

3. The Commission should not give ARRL or ARSFI serious weighting as they do not represent the broad views of the amateur radio community in the United States

The FCC should not give significant weight to filings by ARRL or ARSFI over the past many years, such as in the case of RM-11708, NPRM 16-239, RM-11759, and RM-11828. By way of background, the ARRL and ARSFI have been, in my opinion, highly dysfunctional and insular, and do not properly represent the US amateur radio community or its ideals. Legitimate candidates for ARRL director were disqualified and threatened with disgrace over the past five years, and hardball tactics and threats of censure were placed on at least one ARRL director within the past two years. This is well documented on the grass-roots MyARRLVoice website that brought public awareness to these ongoing problems, and which played a role in five new ARRL board members being elected a few months ago, as well as the resignation of ARRL's CEO over the past few years ((see: <https://www.myarrrlvoice.org/> and <http://perens.com/static/ARRL/TransparencyOctober2018.html> and <https://ecfsapi.fcc.gov/file/7521123278.pdf>).

During this long period of dysfunction, the ARRL Board, and its former lawyer, Chris Imlay, authored or submitted many filings and petitions to the FCC (such as RM-11306, RM-11708, RM-11759, comments in PSHSB 17-344, The Amateur Radio Parity Act, and now RM-11828) which have proved grossly unpopular with rank and file amateur radio operators. These proposals were authored with apparently no consensus or oversight from technical experts, as demonstrated by thousands of public comments of US amateur radio operators at the FCC ECFS.

The Commission should note that ARRL represents only about 20% of all US amateur radio operators, yet sets itself up as the "national lobbyist" for the hobby. Mr. Imlay served for several decades as the ARRL attorney in front of the FCC, and I have learned from past and present ARRL members that Mr. Imlay's father in law, Mr. Booth, served as the ARRL attorney for decades before Mr. Imlay, making a dynasty of more than 70 years for a single "family" of two lone lawyers representing the ARRL and the needs of amateur radio at the FCC.

Regarding ARSFI, it represents an even more insular and fringe part of amateur radio, with a development team of only 17 people. These 17 outspoken individuals have usurped the HF amateur radio spectrum and “double-dip” by using their software for use in the amateur HF bands and also in the government and marine HF bands, taking care to never divulge the fact that the privacy offered to its government and commercial users (where it is legal) are not allowed and unlawful in the amateur radio service (where it is prohibited). The 17 individuals participate in a revenue stream approaching \$100,000 per year for “donations” for their private, proprietary software. The ARSFI reports assets close to \$200,000 on its Form 990, which empowers their efforts to expand their private radio email network, and their closed and proprietary software development and networking system for effectively encrypted email and file transfers that are used by government agencies, private entities, marinas, boaters, and ham radio EMCOMM enthusiasts (see: . <https://winlink.org/WinlinkExpress>, <https://arsfi.org/> , <https://www.guidestar.org/profile/20-5586920>, <https://forums.qrz.com/index.php?threads/wide-bandwidth-digital-danger.639948/page-21>, https://www.winlink.org/content/join_gateway_sysop_team_sysop_guidelines). In very telling fashion, the keywords found on the Guidestar website for ARSFI’s Form 990 have nothing to do with amateur radio, safety, or hobby communications. Instead, Guidestar displays the keywords “intellectual property management” and “fund raising.” RM-11828, along with NPRM 16-239, would open the floodgates for private email and file transfers across international borders, as desired by the ARSFI/Winlink community to better satisfy its “commercial” customers such as government agencies.

The proprietary and closed Winlink software is in direct contrast to open source software that embodies public policy of the amateur radio service. Open source software such as WSJT and FT-8 is made available at no cost and is used by hundreds of thousands of amateur operators around the world. The software enables experimentation, avoids interference through the use of very narrowband transmission, and has fostered great interest in the hobby, including ionospheric experimentation and investigations of a recent solar eclipse. This HF data communications is developed by a team that is transparent and accessible, led by Noble Laureate and Princeton University professor Joe Taylor, K1JT (see: <https://physics.princeton.edu/pulsar/K1JT/wsجتx.html>, [https://en.wikipedia.org/wiki/WSJT_\(amateur_radio_software\)](https://en.wikipedia.org/wiki/WSJT_(amateur_radio_software)) https://groups.io/g/N3FJPSoftware/topic/new_ft8_mode_wsجتinterface/28376915?p=...20,0,0,0::recentpostdate%2Fsticky...20,2,0,28376915).

Unlike WSJT and FT-8, which is open and accessible in the spirit of amateur radio, ARSFI does not provide public access to its software code or development plans, and is constantly seeking to advance its closed community of radio email users to become system operators (sysops), to host gateways that will enable more proliferation of effectively encrypted email traffic in its closed network –with the same software and equipment it offers to non-amateur operators (see the extensive government and commercial donor list of ARSFI). The Commission and Congress should instantly recognize from Part 97 rules that such a service could and should instead be provided by a commercial satellite or radio internet service provider, instead of using the public spectrum of amateur radio. RM-11828 would instantly expand HF data privileges that would feed ARSFI’s desire to expand its system operator network and proliferation of its closed software and messaging system, putting more relay stations and

more wideband interference on the air (see:

https://winlink.org/content/join_gateway_sysop_team_sysop_guidelines),

<https://www.eham.net/ehamforum/smf/index.php/topic,123351.0.html>

<https://ecfsapi.fcc.gov/file/100918881206/PETITION%20FOR%20RULEMAKING.pdf>)

With five new directors in place, and with a new lawyer appointed at the beginning of 2019, the ARRL immediately withdrew from consideration the Amateur Radio Parity Act, one of many unpopular actions taken by ARRL before FCC and Congress. During this long period of dysfunction in ARRL, there has been a strong focus, and continual efforts by Emergency Communications (EMCOMM) enthusiasts, both associated with ARRL, and also from ham operators who work at the FCC, such as Curt Bartholomew:

<https://transition.fcc.gov/pshs/docs/speeches/Curt-Bartholomew-05-17-09.pdf>

to push an agenda of EMCOMM, and with that, an agenda to proliferate obscured, effectively-encrypted, Winlink global and private radio email traffic (which bypasses other commercial means and requires each user to pay a “donation” for an annual service subscription or software license) throughout the High Frequency (HF) amateur radio spectrum.

The current activities by ARSFI/Winlink are believed by a vast numbers of amateur operators to be in clear violation of the pecuniary interest rules and the rules prohibiting commercial bypass and obscured messages in the amateur radio service through use of its proprietary software and service that enables effectively encrypted email from one person to another that is not openly decodable, and basically obscured, over the HF amateur radio airwaves. One vendor, Spezielle Communications Systeme GmbH & Co (SCS), that is popular with boat owners that use Winlink for secure email, has made clear before the FCC that it has proprietary compression and signaling for its Pactor modem (e.g, for all versions that followed after the open-source Pactor 1) (see: <https://www.fcc.gov/ecfs/filing/10123298305905>,

<https://ecfsapi.fcc.gov/file/110731917879/16-239.pdf>

<https://sailmail.com/using-airmail-with-both-sailmail-and-winlink/>

https://www.winlink.org/sites/default/files/download/wl2k_faq_1.pdf

Q260 While monitoring transmissions from WL2K stations, I notice that the content appears as “gibberish”. Isn’t this illegal?

A260 The content looks that way because it is a compressed binary format called “B2F.” This format is available to anyone, so the compressed data is not considered encryption or illegal for radio amateurs. Additional information about B2F is at:

<http://www.winlink.org/B2F>

<http://www.la3f.no/faste/digi/winlink/ExpressTutorial1130a.pdf> (See p. 3 Section II.C)

C. Security?

It is relatively secure. The Federal Communications Commission (FCC) does not permit encryption on amateur radio frequencies. On the other hand, Winlink uses a compression technique that doesn't allow the frequency watcher to read the message – it looks like garbage. (The local Winlink guru has, for years, offered a substantial prize to anyone who could intercept and read a message – no one has claimed it.)

The FCC's continual dismissal of these facts, lack of action, and lack of transparency, are described further below, and warrant investigation by FCC upper management or Congress.

When the FCC first allowed digital data into amateur radio, it was through 95-2106, when the ARRL privately sought data in amateur radio, (see: <https://www.fcc.gov/document/amendment-part-97-digital-codes>) and the FCC took the ARRL at its word that all of the data encoding and decoding were open, specified, and publicly available for interception by others. (see: <https://www.govinfo.gov/app/details/FR-1995-11-01/95-27044>,

<https://www.govinfo.gov/app/details/FR-1995-11-01/95-27044>). That was in 1995, when Pactor 1, the original "Pactor" was, indeed, open source and published in one of the ARRL magazines, QEX, in Nov. 1994 (see: <http://www.arrl.org/qexfiles>) . Since then, SCS and other modulations developed by ARSFI/Winlink use proprietary compression and ARQ modes which provides effective encryption, and further, they allow for the sending of email and files with encryption or compression that are proprietary or obscured -- messages that amateur operators and FCC official observers are unable to decode (they can only detect the header which is still sent in the original open-source Pactor 1 format).

RM-11828 is another one of the flawed, unpopular proposals crafted and submitted by the ARRL before the five new ARRL directors were elected and before a new attorney was hired two months ago.

4. FCC Management or Congress should investigate FCC actions and potential biases regarding Part 97 regulations and enforcement

Based on recent events as described below, I urge FCC management or Congress to investigate procedures, biases, and past suspicious actions at the FCC WTB and PSHSB, in an effort to uncover and thwart efforts that appear to deliberately ignore, and instead attempt to expand, the improper use of wideband, obscured email and file transfers in the United States amateur radio service. I believe that if left unchecked and ignored, this continued assault on the basic principles of the amateur radio service will degrade the fabric and purpose of the hobby, will create massive and uncontrollable interference on the HF bands, will hamper the cultivation of trained technical experts and future engineers in the US, and will threaten the national security of the United States through transmissions that cannot be intercepted by the public. It should be clear that the ARRL's flawed tactic of promoting EMCOMM and ignoring the public policy intent of amateur radio may be a major reason for the anemic growth of the hobby as cited by ARRL in its proposal, yet it seems that FCC WTB and PSHSB officials and ARSFI/Winlink officials continue to promote this agenda through NPRM 16-239 and RM-11828.

The amateur radio spectrum is prohibited from being used for private, secure commercial grade email and file transfer services. ARSFI/Winlink and ARRL are on record for wanting to build upon its network

of relay stations to provide private (obscured) email service, rather than honoring the public policy of amateur radio which is to foster listening and learning by the public, where the public may openly listen in to all transmissions, experiment with software and hardware, and tune in to become engaged with the hobby and the people in it.

I question why RM-11828 would be published now, in light of the very recent withdrawal of the Amateur Antenna Parity Act by ARRL, the appointment of a new ARRL attorney, and in light of the vast public comments against NPRM 16-239 and RM-11708, and on the heels of the very recent elections of new ARRL officials, some who have told me they are unaware of the background of RM-11828 and who want to take on this abuse of the amateur radio service by effectively-encrypted data.

Based on the history of digital aggression on the part of ARRL, ARSFI/Winlink, and some FCC WTB and PSHSB officials, I do not consider it unreasonable to believe that some past and present ARRL board members or staff, Winlink/ARSFI advocates, and FCC staff felt the need to urgently try and push this RM through, before the new ARRL board was in place, and before elections at ARRL next year.

My viewpoint is reasonable, particularly in light of the fact that ARSFI and Winlink, ARRL officials, and FCC officials within WTB and PSHSB have ignored for years, and continue to ignore, the rank and file amateur operators that have publicly complained that much of today's data traffic (e.g. those supported and/or developed by Winlink and ARSFI that use ARQ, including PACTOR, as well as other email encryption methods) cannot be intercepted or listened to by other amateur operators or by FCC monitoring stations.

Has FCC WTB, PSHSB or enforcement officials, or ARRL officials, ever tried to decode Winlink email or file transmissions over the air? Has the FCC or ARRL or ARSFI/Winlink ever admitted that they cannot intercept Winlink generated email or file transfers meant for stations other than themselves? While ARSFI admits the header can be detected, it is noticeably silent about the payload of the message itself, and fails to state how that even if known encryption and compression methods are used, they do not enable others to eavesdrop, since a vital key is not made public to others. Furthermore, nothing in ARSFI's public statement discusses open-source, readily available software or hardware that assures others can practice the spirit and intent of the amateur radio hobby, and Winlink's own tutorial admits to effectively encrypting its traffic, even when ARSFI does not admit this to the FCC (see:

https://winlink.org/sites/default/files/arsfi_comments.pdf

and then see the Winlink tutorial which contradicts ARSFI's statements, page 3, II.C Security "The Federal Communications Commission (FCC) does not permit encryption on amateur radio frequencies. On the other hand, Winlink uses a compression technique that doesn't allow the frequency watcher to read the message –it looks like garbage. (The local Winlink guru has, for years, offered a substantial prize to anyone who could intercept and read a message – no one has claimed it.)

<http://www.la3f.no/faste/digi/winlink/ExpressTutorial1130a.pdf>)

Intercepting the Winlink/Pactor and other ARQ transmissions simply cannot be done, yet there is no admission of these facts by FCC, ARSFI/Winlink, or ARRL. FCC management should wonder why this is, when thousands have publicly complained about this for over a decade. Some hams have begun to

admit this basic fact, but why won't FCC, ARRL, or ARSFI/Winlink admit this, and how can they not address this when a basic premise of the amateur radio service is for hams to self-police the proper use of their own spectrum (see: <https://www.fcc.gov/ecfs/filing/1222718116209>).

Why won't ARRL, FCC, and ARSFI/Winlink associates admit that this traffic is intentionally designed to support private emails and file transfers that can only be exchanged between the sending station and the receiving station? While suitable for government use, or maritime mobile use where privacy is desired (see the list of ARSFI donors), this is not suitable for amateur radio, since the listening public is unable to intercept the "meat" of the message or the contents of the file, in direct violation of numerous Part 97 rules, 95-2106, 13-1918, and the stated purpose of the amateur radio service. The Department of Homeland Security (DHS) and PSHSB, noted Donors and users of ARSFI/Winlink, do not have a right to use the amateur radio service for encrypted email that is not openly monitored by other ham operators.

I believe it would be wise for FCC management or Congress to investigate what motivates FCC officials within WTB and PSHSB to ignore the thousands of complaints of data traffic that flies in the face of the public policy of amateur radio, first in RM-11306, then in RM-11708, then in NPRM 16-239, and now in this RM-11828. FCC management or Congress should investigate why there has not been any action by the Commission to ban Pactor 2, 3, and 4 from the US amateur radio service in light of the June 2018 letter from SCS to FCC WTB official Scot Stone, wherein SCS openly admits its use of proprietary signaling – in direct violation to FCC Part 97 rules, and fails to give Mr. Stone what he was seeking in his inquiry. In essence, SCS's reply is an admission that it is in direct conflict with the FCC's original ruling in 95-2106 that was granted to allow the open-source Pactor 1 modulation, where the FCC expressly authorized data based on its belief and trust in ARRL that the data transmissions were completely documented, specified and open to all. FCC should note that SCS has clearly denied that Pactor 2, 3 or 4 are open in its communication, through its reply to the FCC's inquiry in June 2018 – the data methods are proprietary, and thus not open, documented, specified, and unable to be intercepted by rank and file amateur operators.

<https://ecfsapi.fcc.gov/file/110731917879/16-239.pdf>

It would be valuable, in light of the dysfunction on the part of ARRL, to find out why this flawed RM has appeared now, without first giving ARRL's newly elected board leadership an opportunity to investigate the illegal use of wideband data on the HF bands. Furthermore, FCC management or Congress would be wise to investigate the actions and beliefs of some of its WTB and PSHSB officials that control the FCC proceedings in the amateur radio service. Given the continued digital aggression that has come from ARRL, ARSFI/Winlink, and in light of the surprising NPRM 16-239 proposal from the Commission that completely ignored a large public outcry in RM-11708, employees at the FCC should be investigated with regard to their views and interpretation of the stated purpose of amateur radio, the appropriate or inappropriate use of obscured data transmissions in amateur radio, and any associations they have with Winlink, ARSFI, former ARRL lawyer Chris Imlay, ARSFI donors and users such as the Public Safety and Homeland Security Bureau (PSHSB), all who apparently would like to have, and working to gain, more free HF spectrum for secure communications through NPRM 16-239 and RM-11828, on the backs of the amateur radio service. Some FCC officials are avid EMCOMM enthusiasts, and their desire for

more operating spectrum may cloud their objective handling of public comments and rulings, and may also ignore the obvious problems with enforcement of the amateur radio service when messages are obscured from general interception over the air.

<https://transition.fcc.gov/pshs/docs/speeches/Curt-Bartholomew-05-17-09.pdf>

Rather than focus on reorganizing the structure and approach of ARRL to foster growth in amateur radio, or to build connections with the maker community or the public school system and higher education, the ARRL simply asks for more HF spectrum, to open the flood gates to unskilled users who merely need memorize a very simple test (that many ten year olds have passed). The real reason for the "handout" seems obvious, when taken in the context of RM-11708 and comments by ARRL in PSHSB 17-344. The EMCOMM excuse is used to simply perpetuate obscured messages for private email use that cannot be intercepted, and worse, could be used to bring danger to our country without amateur operators being able to listen in on the conversation. (see:

<https://www.rrmediagroup.com/News/NewsDetails/NewsID/17804>)

I submit that this proposal by ARRL is simply another effort to alter the established purpose of the amateur radio hobby, and appears to be yet another coordinated effort between the ARRL emergency communications advocates who are closely associated with Winlink and ARSFI proponents, and perhaps with FCC officials in WTB and PSHSB, just as the public saw in the closely coordinated comments to FCC in PSHSB 17-344 after the Puerto Rico hurricane disasters. Some of the same players seem to be at work (Chris Imlay for ARRL, Steve Waterman and Lor Hutchins for Winlink and ARSFI, and Curt Bartholomew at the FCC).

As a technical expert who has followed the activities of ARRL and Winlink/ARSFI closely, I urge FCC officials to read carefully the rulings of 95-2106, and 13-1918 by the Commission, as well as the stated purpose of the hobby in Part 97 and on the FCC website. Look at the "origins" of Pactor in the amateur radio service, from open source Pactor 1, to the effectively encrypted and proprietary, undocumented, unspecified Pactor 2,3 and 4. Ask ARRL board members to use their Pactor modem and Winlink account at the W1AW HQ station to try and decode over the air messages or email files of other stations - they will see they cannot decode other "over the air" Winlink traffic being sent. (see:

https://groups.io/g/DCARC/topic/fcc_nprm_16_239_your_help_is/28867955?p=,,20,0,0,0::recentpostdate%2Fsticky,,,20,2,0,28867955)

I urge the FCC to not consider *any* Part 97 HF rulings in the Amateur Radio Service until the major problem of obscured messaging and the bypassing of commercial business service (e.g. Email), and illegal business use is dealt with. Yet, how have these concerns been handled by FCC Enforcement, Public Safety and Homeland Security, and Wireless Telecommunications Bureau officials to date? Congress and FCC upper management should investigate why nothing has been done. Why hasn't the rulemaking proposal submitted to the FCC by Ron Kolarik, K0IDT, submitted in Fall 2018 to deal with egregious rule violations by wideband digital data stations subject to Part 97, and public outrage about the ARRL's efforts to ignore the problems, been considered, and why would FCC officials ignore such an approach which follows the public policy mandate of the amateur radio service? I urge the FCC

specifically dismiss RM-11828 and NPRM 16-239, until the issue of obscured data traffic is specifically dealt with and clarified at the Commission (see:

<https://ecfsapi.fcc.gov/file/100918881206/PETITION%20FOR%20RULEMAKING.pdf>)

Some other simple arguments why this RM-11828 and NPRM 16-239 must be ignored or rescinded may be found in the public domain, and also in the vast public comments that were filed by concerned amateur operators in RM-11708 (after March 14, 2014 through Nov. 16, 2019), and during the stated one month comment period for NPRM 16-239. Other comment periods in those proceedings should be ignored by the Commission, as they were dominated by lemming filings by the boater community, many who were not amateur operators, to advocate for free secure email and the ARSFI Spectrum takeover position, and they were riled up by ARSFI and Winlink advocates on the boater and yachting websites and blogs across the country (- notably, not on amateur radio blogs or websites-), or in the case of NPRM 16-239.

The FCC and ARRL should reject or rescind RM-11828 and RM-11708/NPRM 16-239, and should first fix and enforce its own rules in 95-2106 and 13-1918. For the good of the amateur radio hobby and our nation, FCC must not act on RM-11828 or NPRM 16-239, since the FCC has not properly safeguarded the airways such that ham operators may self-police themselves to ensure proper use of amateur radio. The FCC and the hobby itself is unable to monitor or police its own airwaves when messages are effectively encrypted. There are so many digital modes now being developed and used by Winlink and ARSFI that are not able to be intercepted by others over the air, or even by the relay stations, themselves. Winlink and ARSFI software is not made open, the relay stations are not publicly displaying their traffic in real time, and the email system functions as a completely closed and encrypted network on the amateur radio bands.

Flatly, this NPRM-11828 will promote more illegal and improper use of the amateur spectrum with more digital data that cannot be openly monitored, and will create problems similar to those that would ensue with NPRM 16-239, RM-11708.

5. Further evidence suggests manipulation by ARSFI/Winlink and ARRL at FCC

Finally, as further evidence of what appears to be bias and influence from ARRL, Winlink/ARSFI, and FCC officials in this matter, and why I believe FCC management or Congress should investigate the appearance of this RM and NPRM 16-239 at this time, as well as why FCC management or Congress should question the lack of action to ban Pactor transmissions and other HF data transmissions that are not openly decoded over the air by amateur operators, please consider these additional facts.

I sent a rough draft of this filing to the following FCC officials and ARRL board members on Wed., March 13, at 1:15 PM just after RM-11828 appeared on the FCC ECFS website.

Ajit Pai <ajit.pai@fcc.gov>; Matthew Berry <matthew.berry@fcc.gov>; Julius Knapp <julius.knapp@fcc.gov>; Michael Ha <michael.ha@fcc.gov>; Eric Burger <Eric.Burger@fcc.gov>; Donald Stockdale <Donald.Stockdale@fcc.gov>; rjairam@gmail.com; Fred Hopengarten <hopengarten@post.harvard.edu>; W2RU@frontiernet.net; hhamwv@gmail.com

Of the 10 email recipients, 6 are FCC officials, three are newly elected ARRL board members, and one is the new ARRL attorney. On the morning of Friday, March 15, 2019, while I was visiting FCC officials to present to the Commissioners at their open meeting in the matter of Docket 18-21 Spectrum Horizons, the CTO of the FCC, Dr. Eric Burger, told me something to the effect of: “Ted, you sent your email to us at 1:15 pm on Wednesday. Within a couple of hours, Steve Waterman tried to call me - I did not answer his call.”

FCC officials, ARRL and ARSFI/Wilink officials should explain to amateur operators and the general public why and how would Steve Waterman, a leader and founder of Winlink and a vocal leader in the movement to spread the use of effectively-encrypted wideband data in the amateur radio service, be calling the FCC CTO within a couple of hours of me sending a rough early draft version of this filing to the 10 listed people above? Is this a coincidence, or did one of those email recipients leak my email to Steve Waterman directly or indirectly to another FCC official or to another ARRL officer who then contacted Steve Waterman?

On Friday afternoon, March 15, 2019, I personally talked to the ARRL attorney and two of the three ARRL board members by telephone as I drove from Washington to my home in Riner, VA. All three people denied forwarding or divulging my email of this draft. The remaining ARRL officer, George W. “Bud” Hippisley, the ARRL director who represents Virginia at ARRL, did not return my call. Did Mr. Hippisley forward my email to Mr. Waterman? Did Mr. Hippisley or the other ARRL officers forward my draft to another ARRL officer, who then contacted Mr. Waterman? Did one of the FCC officials forward my email to someone else inside the FCC, who then alerted Mr. Waterman? And why would Mr. Waterman be calling the FCC CTO? Did he call other officials inside the FCC? What was he calling about? Did Mr. Waterman call anyone in WTB or PSHSB? Where is the Ex Parte filing by Mr. Waterman, if he did talk with FCC officials? Did Mr. Waterman talk with Scot Stone or Curt Bartholomew or Eric Burger, or others at the FCC, and if so, what was said?

Furthermore, how and why did the letter from SCS (dated June 11, 2018), addressing a formal query from FCC’s Scot Stone (dated June 8, 2018) appear on the FCC website in the matter of NPRM 16-239 in November 2018 – a five month delay? (see: <https://ecfsapi.fcc.gov/file/110731917879/16-239.pdf>)

What were Scot Stone and Curt Bartholomew and Steve Waterman doing together with this information when the public was not privy to the FCC’s request or SCS’s response to information regarding obscured data over the amateur radio airwaves for that five month period? Why wasn’t this letter and information made public within a day or so from when it was received — why was there a five month delay before the public was made aware of this?

This begs the question: what were the “behind the scenes activities” surrounding this mysterious request for information by Mr. Stone of WTB on June 8, 2011, and the vague reply by SCS on June 11, 2018. Were ARSFI/Winlink officials, or Mr. Imlay of ARRL, or other ARRL or FCC officials privy of this information that was hidden from the public for five months? Moreover, why would Scot Stone of FCC’s WTB issue a request for information to SCS, the maker of Pactor modems, in June 2018, almost two years after the comment period of NPRM 16-239 was over? Also, Congress or FCC management

should ask why SCS's indignant response to Mr. Stone included Steve Waterman on its reply. Mr. Waterman was not indicated as a recipient of Mr. Stone's inquiry, but was he blindly copied by Stone? Waterman is a vocal leader of Winlink/ARSFI, and was curiously named as copied recipient in the formal response from SCS on June 11, 2018 that appears in the FCC record in November 2018, yet Mr. Waterman is not an FCC employee and clearly has a vested interest in the perpetuation of wideband, effectively encrypted data that I and thousands of others view as illegal under Part 97 rules. Why does the FCC continue to ignore public comments, such as in RM-11708 after March 14, 2014, and the entire RM-11306 proceedings, and the one month filing period in NPRM 16-239 where the vast majority of rank and file amateur operators are on record for being vehemently against the effectively-encrypted digital data aggression promoted by ARSFI/Winlink for its closed email system. Why do FCC and ARRL leadership continue to ignore public outcry that was evident in RM-11306, RM-11708, NPRM 16-239, and in this proceeding?

FCC and Congress should also ask why Pactor 2, 3, or 4 has not already been banned on the US amateur radio spectrum, particularly based on the posture presented to SCS in Mr. Stone's email on June 8, 2018:

<https://ecfsapi.fcc.gov/file/110731917879/16-239.pdf>

If the FCC concludes that the technical characteristics of Pactor 3 have not been documented publicly to the extent required by Section 97.309(a), use of Pactor 3 by the amateur radio operators in the United States is prohibited, and the FCC would so inform the amateur community.

The amateur radio community deserves to know what the FCC is concluding, based on SCS's response to the above query. Why isn't Pactor 3 (and Pactor 2, for that matter) banned from the amateur radio service in light of the reply by SCS and admission of proprietary signaling?

I am publicly disclosing this filing as an Ex Parte, as required by FCC rules. Where is Mr. Waterman's or ARSFI or ARRL's filing of ex parte communications to Curt Bartholomew, Scot Stone, Laura Smith, and other FCC officials over the years, and how have they worked together in determining the rules and regulations and enforcement of the amateur radio service? The strange five month lapse in time for an FCC inquiry that occurred nearly two years after the comment date is suspicious, particularly since Steve Waterman was privy to the entire chain of events in the summer of 2018, when the public was not. It begs the question "who else was privy to this, and what actions or inactions were being advocated or taken at the FCC."

Steve Waterman called the FCC CTO last week, so it is reasonable to assume he was trying to reach FCC officials within two hours of a draft of this filing. Why? What was said when he reached FCC officials? Who inside of ARRL or FCC is leaking information to Winlink's Steve Waterman? Where is the Ex Parte filing by Mr. Waterman? Where is the accountability of FCC officials to preserve the stated goals and purpose of the amateur radio service?

ARSFI and Winlink are uneasy with my position, and the positions of thousands of others whose viewpoint I share. This can be seen in their ad hominem attack: https://winlink.org/FCC_Action.

It bears investigation as to why there is no record of Ex Parte from Steve Waterman, when he appears on a reply by SCS to a FCC formal inquiry issued by FCC's Mr. Stone in June 2018, and why no action has been taken to ban Pactor from the amateur radio service as Mr. Stone threatened to do in his inquiry. It bears investigation into what ties exist between the dysfunctional ARRL board, its former lawyer Chris Imlay, ARSFI/Winlink advocates such as Steve Waterman, and FCC officials in WTB, PSHSB or the CTO's office. The lack of enforcement or attention to the ongoing issues of RM-11306, RM-11708 and NPRM 16-239 certainly give the appearance that there are strong biases by individuals in a power of influence in ARRL, ARSFI/Winlink, and in the FCC that are usurping the amateur radio spectrum for pseudo-commercial and private email, while jeopardizing national security and ignoring public concerns of the amateur radio community. Further, in light of the above, there appears to be efforts to prevent transparency and objective discourse on this issue of effectively-encrypted, obscured messaging for private email between only two people – the sender and the receiver – which cannot be intercepted and listened to over the air in the amateur radio service.

RM-11828 should be viewed as another attempt in a long string of petitions by the dysfunctional ARRL and its former lawyer to perpetuate wideband data pipes for ARSFI/Winlink through the instant granting of HF data privileges to operators who have not demonstrated the knowledge or skill to properly use the HF bands. In essence, Congress or FCC management should deal with, and must not continue to ignore, the erosion of the purpose and mission of amateur radio in the United States. The ARRL is failing to inspire new entrants to the hobby. Giving them a handout of more spectrum (for them to abuse) is not the answer, and is dangerous to the country and would provide great interference in the shortwave bands that are shared globally. It is only by tapping into the maker movement, the open source software movement, and getting citizens, particularly youth, interested in the thrill of electronics and international goodwill that we can increase the reservoir of trained technical experts. The FCC must not continue to facilitate the enrichment of the coffers of a tiny splinter group that has gone unchallenged for decades as it provides private email over HF (and for US government agencies within the amateur radio spectrum- a spectrum which must strictly be limited to personal/hobby use). Complying with the requests of aggressive yet dysfunctional organizations that represent a small minority of the US amateur radio operators is not the way to grow the hobby or create new technical experts that are vital for our nation.

In conclusion, I urge the Commission to dismiss RM-11828 and NPRM 16-239, and investigate the actions and associations of FCC employees with ARSFI/Winlink and ARRL associates in these matters, so that the FCC can protect the amateur radio service by emphatically banning obscured, proprietary data schemes that cannot be eavesdropped by others and which improperly bypass other existing commercial means of service.

Sincerely,



Theodore S. Rappaport, N9NB
David Lee/Ernst Weber Chair
Director, NYU WIRELESS

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ECFS - Docket 16-239, PSHSB 17-344, RM-11708, RM-11759, RM-11828